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BULLETIN

OF THE

TORREY BOTANICAL CLUB

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TORREY BOTANICAL CLUB

FEBRUARY, 1922

Miscellaneous notes on plants of Southern California—I

PHILIP A. MUNZ AND IVAN M. JOHNSTON

Recent botanical collecting has added to our knowledge of the flora of Southern California and has made possible the presentation of the notes given in this paper. Collections cited as having been made by "*M & H*" were by Munz and Harwood, those by "*M, J & H*" were by Munz, Johnston and Harwood; other collections are not abbreviated. Specimens of all the plants mentioned are in the C. F. Baker Herbarium of Pomona College.

NOTHOLAENA SINUATA var. INTEGERRIMA Hook.

Notholaena sinuata var. *integerrima* Hook. Sp. Fil. 5: 108. 1864.

Locally abundant on a rocky hillside in a gulch back of the Bonanza King Mine, Providence Mountains, Mohave Desert, *M & H 3550* and *M, J & H 4224*. Our material is a fine match for the figure given by Eaton (Ferns of North America *pl. 39, f. 1.* 1879). New to California.

WOODSIA SCOPULINA D. C. Eaton

Woodsia scopulina D. C. Eaton, Canadian Nat. II 2: 90. 1865.

This fern, infrequent in the higher mountains of the middle and northern parts of the state, must be accredited a place in the fern-list of Southern California, as a few plants were collected in the Providence Mountains several miles south of the Bonanza King Mines. The single colony discovered, *M, J & H 4212*, was growing in the shelter of boulders in the bed of a dry gulch in the lower portions of the pinyon belt. The soil in which the plant

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grew was damp, not saturated, gravel; a water hole was situated a few hundred feet down the canyon and there was apparently a meager supply of water from underground sources. On the adjacent canyon walls were such typical xerophilous ferns as *Notholaena tenera, M, J & H 4232; N. Parryi, M, J & H 4236; Cheilanthes Feei, M, J & H 4215; C. Covillei, M, J & H 4015; Gymnogramme triangularis, M, J & H 4021;* and *Pellaea compacta, M, J & H 4018.*

NOTHOLAENA CALIFORNICA D. C. Eaton

Notholaena californica D. C. Eaton, Bull. Torrey Club **10**: 27. 1883.

The junior author collected a few plants of this fern high upon a precipitous south-facing cliff at Deadman Point, about ten miles southeast of Victorville. The collected plants were associated with an abundance of *Notholaena Parryi* and with fewer *Cheilanthes Covillei* and *Gymnogramme triangularis*. This collection now marks the most northern station for this species, at least in California, and at the same time makes the species first known as an element of the Mohave Desert flora. Maxon in his recent discussion (Contr. U. S. Nat. Herb. **17**: 603. 1916) has cited many specimens that show the distribution of this neat little plant. Johnston (Bull. So. Cal. Acad. **17**: 64. 1918) has recorded a second coastal and what is at the same time the most westerly known station on the mainland.

TRIODIA MUTICA (Torr.) Benth.

Tricuspis muticus Torr. U. S. Rep. Expl. Miss. Pacif. **4**: 156. 1857. *Triodia mutica* Benth.; Wats. Proc. Am. Acad. **18** : 180. 1883.

Abundant on a rocky pinyon-clad hillside near the Bonanza King Mine, in the Providence Mountains, *M, J & H 4132*. Previously known in California only from a collection made in the central Sierra Nevada (cf. Jepson, Fl. California 141. 1912). Determination by Mrs. Chase.

AGAVE UTAHENSIS Engelm.

Agave utahense Engelm. Bot. King. Exp. 497. 1871.

Common in rocky places in the pinyon belt of the Providence Mountains, *M, J & H 4302*. This is the "*Agave sp.*" reported by

Brandegee (Zoe 5: 153. 1903). Mulford has cited a collection made by Parish at Ivanpah (Rep. Missouri Bot. Gard. 7: 78. 1896).

YUCCA BACCATA Torr.

Yucca baccata Torr. Bot. Mex. Bound. Surv. 221. 1859.

The presence of this species in the Providence Mountains was reported recently by Mr. Parish (Bot. Gaz. 65: 336. 1918) and at a much earlier date by Dr. Engelmann (Trans. St. Louis Acad. 3: 44. 1873), so that all that remains for us to do is to add a few notes on its habits. This species and *Y. mohavensis* are very common in the vicinity of the Bonanza King Mine but, although growing in the same region, differ widely in habitats and habits, as well as in technical characters. *Y. baccata* grows on rocky, sunny hillsides in the pinyon belt and is a very late-flowering plant; for but few individuals were in flower during our visit to the mountains from May 21 to 24, 1920. On the other hand, *Y. mohavensis* grows along the foot of the mountains, below the pinyon belt, and flowers very early; for on the May visit fruit was set, flowering having been observed on an earlier visit during the last week in March. Our observations fully substantiated Mr. Parish's statement that *Y. baccata* was recognizable in the field by the lighter color of the leaves and the universal acaulescent habit.

Structurally the two species are very distinct. *Y. baccata* has large campanulate flowers, whose perianth segments do not spread from the base but remain erect and appressed about the ovary for a short distance before spreading, thus suggesting the tubular condition characteristic of the genus *Samuela* Trel. In *Y. mohavensis* the shorter segments spread from the very base and are more curved, thus making the flowers globose in shape.

The meager material that is available of *Y. baccata* suggests that there may be a major and a minor flower form. Mr. Brandegee's collection, reported as *Y. mohavensis* (Zoe 5: 153. 1903), Lemmon's 1884 collection at Ft. Mohave, and our *M, J & H 4114* all represent plants with conspicuously large flowers, the perianth-segments of which vary between 8 and 9.5 cm. in length. On the other hand, *Parish 10281* from the north end of the Providence Mountains and our *M, J & H 4113* from the south end of these

mountains have strikingly smaller corollas, the perianth-segments measuring 6–7 cm. in length. Under the original description Dr. Torrey quotes Bigelow to the effect that this species has perianth lobes 2½ or 3 inches (6.25–7.5 cm.) long, while Wooton and Standley (Contr. U. S. Nat. Herb. **19**: 135. 1915) give them as 5–8 cm. long, and Trelease (Rep. Missouri Bot. Gard. **13**: 110. 1902) says that they are "about 75 mm." long; these facts would indicate that our large-flowered plants have flowers large for the species. It is to be hoped that future collections will be made with especial attention to this species, in order to ascertain the exact nature and extent of the floral variation here indicated.

In passing, it should be noted that the style-characters given by Trelease (Rep. Missouri Bot. Gard. **13**: 46. 1902; and Contr. U. S. Nat. Herb. **23**: 91. 1920) and the flower- and foliage-characters given by Sargent (Gard. & For. **9**: 104. 1896) seem to be illusionary, and that the distinctness between our western *Y. mohavensis* and the Texan plant originally called *Y. baccata* var. *macrocarpa* (Torrey, *l.c.*) is open to strong doubt. We would use the name *Y. macrocarpa* (Torr.) Coville (Contr. U. S. Nat. Herb. **4**: 202. 1893) in preference to *Y. mohavensis* Sarg., were it not for Engelmann's *Y. macrocarpa* (Bot. Gaz. **6**: 224. 1881); the denotation of *Y. macrocarpa* Engelm. is uncertain from the literature (Trelease, *op. cit.* 98. 1902; Sargent, *l.c.*; and Engelmann, Bot. Gaz. **7**: 17. 1882); and it is thought best to make no change in our usage until it has been definitely decided whether Engelmann's species be a synonym of *Y. Schottii* or actually identical with Torrey's var. *macrocarpa*, as Wooton and Standley have treated it. In other words we use *Y. mohavensis* in a wide sense and include therein *Y. baccata macrocarpa* Torr., though appreciating the fact that *Y. mohavensis* may not be the correct name for such a concept

Dr. Merriam (N. Am. Fauna **7**: *pl. 12, 14.* 1893) has given two plates that show the very different forms which characterize *Y. baccata* and *Y. mohavensis*. Although his plate of the latter represents the dominant and ordinary phase of that species, yet we observed a phase with unbranched trunks and usually longer leaves, whose habit is strongly suggested by the plants of a very different species, figured in *pl. 3* of the third report of the Missouri Botanical Garden.

NAIAS FLEXILIS (Willd.) Rostk. & Schmidt

Caulinia flexilis Willd. Abh. Akad. Berlin 95. 1803.
Naias flexilis Rostk. & Schmidt, Fl. Sedin. 382. 1824.

Previously reported by Davidson from Soldiers' Home near Los Angeles; collected in 1919, *Street & Williams 2688*, at Laguna Lakes near Laguna Beach, about fifty miles southeast of earlier records. The shallow pools known as the Laguna Lakes have a rather interesting lot of aquatic plants, such as *Zannichellia palustris*, *Echinodorus cordifolius*, *Marsilea vestita*, and *Elatine californica*.

ERIOGONUM APICULATUM Wats.

Eriogonum apiculatum Wats. Proc. Am. Acad. **17**: 378. 1882.

This species, said by Jepson (Fl. California 407. 1914) to occur on "Mt. San Jacinto, 7800 to 8200 feet" and on "Cuyamaca Mt.," has been collected at 5,500 feet, August 5, 1918, *Mrs. Mary F. Spencer 989*, in open woods on Palomar Mountain in San Diego County. This station, in addition to being of altitudinal interest, is considerably west of the others mentioned.

MOLLUGO VERTICILLATA L.

Mollugo verticillata L. Sp. Pl. 89. 1753.

Said by Jepson (Fl. California 460. 1914) to be "sparingly naturalized" and given as collected by Davidson in Los Angeles. Abrams (Fl. Los Angeles 127. 1917) names also Laguna in Orange County. We can report this plant from near Beaumont, on the line between Riverside and San Bernardino Counties, *Munz 2614*, March 1919, growing on a dry hillside in the chaparral at about 2000 feet.

HERNIARIA CINEREA DC.

Herniaria cinerea DC. Fl. Fr. Suppl. 375. 1815.

This species, naturalized from southern Europe, can now be reported from Southern California, *Munz & Johnston 4406*, Pomona College Campus, Claremont, where it is fairly well established, but threatened by impending grading and building. Our plants are well matured and some of them had ripened their seeds by the end of March.

ANEMONE TUBEROSA Rydb.

Anemone tuberosa Rydb. Bull. Torrey Club **29**: 151. 1902.

Previously recorded from California as collected in the Panamint Mountains, 1891, *Coville & Funston;* and in 1849 by Fremont,

locality not given. It was found abundant at the eastern base of the Providence Mountains on rocky slopes just below the pinyon belt, *M. & H 3555* and *M, J. & H 4207*.

MYOSURUS CUPULATUS Wats.

Myosurus cupulatus Wats. Proc. Amer. Acad. **17**: 362. 1882.

Canyon side in the Upper Sonoran Zone at 4,000 feet, Providence Mountains, *M, J & H 4152*, May 22, 1920; at this time the plants were quite dead, having matured their seeds. Previously known only from a few collections in Arizona.

JEPSONIA PARRYI (Torr.) Small

Saxifraga Parryi Torr. Bot. Mex. Bound. Surv. 69. *pl. 25*. 1859.
Jepsonia Parryi Small, Bull. Torrey Club **23**: 18. 1896.

In January, 1921, Mr. Gordon Nicholson detected a very populous colony in a small side canyon running up into the Santa Ana Mountains from the Santa Ana Canyon, and very near the Orange-Riverside County line. The plants grew at about 1,000 ft. altitude in clay soil, on a rather open grassy slope facing west. We have only specimens in leaf, but these check closely with plate 25 in the Mexican Boundary Survey Report. The type came from San Diego County where it has been collected several times since, but outside of that county it has been known from but two collections, both in Riverside County. Dr. Hall found it at Double Butte near Winchester, and Mr. Parish has reported it from Palm Springs (Muhlenbergia **3**: 123. 1907).

LINUM SPERGULINUM Gray

Linum spergulinum Gray, Proc. Am. Acad. **7**: 333. 1868.

This plant, previously known from Middle California, has been collected in Pine Hills, San Diego County, *Mrs. Mary Spencer 1596*, at 4,200 ft., on June 25, 1920. The appendage on the petal is as described by Gray.

HOLACANTHA EMORYI Gray

Holacantha Emoryi Gray, Pl. Nov. Thurb. 310. 1855.

Two collections were made: one, *M, J & H 4295*, was eight miles west of Ludlow in a sandy wash along which it occurred for several miles; the other, *M, J & H 4300*, was five miles east of Amboy on flat stony desert. Both these specimens are more

compact than Emory's figures in the Mexican Boundary Survey, but a specimen sent us by Mr. S. B. Parish, collected by a Mr. Childs at the Hayfields in the Chuckawalla Valley, is of more open habit than the one in Emory's plate. Both of our collections were very near the road and from large conspicuous shrubs, three to four feet high, forming wide gray masses of interlacing thorns; it seems strange that such conspicuous plants so near the road have been collected so seldom. Our Ludlow station is no doubt the one reported by Mrs. Ferris (Bull. So. California Acad. **18**: 13. 1919), but the one near Amboy is some distance from those reported by Davidson (*ibid.* **19**: 55. 1920).

TRAGIA RAMOSA Torr.

Tragia ramosa Torr. Ann. Lyc. N. Y. **2**: 245. 1826.

Locally common in a gravelly and stony canyon bottom in the Lower Sonoran Zone at the eastern base of the Providence Mountains, *M, J & H. 4219*. The first collection that has been reported from California.

ABUTILON PARVULUM Gray

Abutilon parvulum Gray. Pl. Wright. **1**: 21. 1852.

In rocky ground at the base of the Providence Mountains near a deserted mining camp several miles south of the Bonanza King Mine; rather common locally; *M, J & H 4206*. First record from California.

FRASERA PARRYI Torr.

Frasera Parryi Torr. Bot. Mex. Bound. Surv. 156. 1859.

Collected June 7, 1919, in the foothills of the San Gabriel Mountains between Live Oak and San Dimas Canyons, by *Mrs. Fitch, C. F. Baker Herbarium No. 6594*. Long ago reported from "east of . . . Los Angeles" by Brewer (Bot. California **1**: 484. 1876), but not again detected on the south slope of the San Gabriel range until the present. Frequent in the San Bernardino and San Jacinto ranges, where it inhabits pine-clad slopes of the Transition Zone. The present collection was a single plant and grew in the lower chaparral belt at about 1700 feet altitude.

SALVIA MOHAVENSIS Greene

Audibertia capitata Gray, Proc. Am. Acad. **7**: 387. 1868.

Salvia mohavensis Greene, Pittonia **2**: 235. 1892.

Collected on the crest of a rocky outlying spur of the Turtle Mts. southwest of Needles, *M & H 3509*. It was also found rather commonly on rocky places in the Providence Mountains, which constitute the type locality. The Parish brothers long ago collected it in the mountains near Camp Cady. The Turtle Mountain station was at only about 1,200 feet altitude; plants were beginning to flower there on the first of April. In the Providence Mountains the species was observed from the base to near the crest, from 3,000 to 7,000 feet altitude, where only a few plants were in bud in the last week in May. Field observation would indicate that the species is restricted to rocky places, paying little attention to the lines between the Sonoran Zones.

CRYPTANTHA MARITIMA Greene

Krynitzkia ramosissima Greene, Bull. Cal. Acad. 1: 203. Au 1885.
Not *Krynitzkia ramosissima* Gray, Proc. Am. Acad. 20: 277. Ja 1885.
Krynitzkia maritima Greene, Bull. Cal. Acad. 1: 204. Au 1885.
Cryptantha maritima Greene, Pittonia 1: 116. 1887.

Attention should be called to the fact that the plants currently going under the name of *C. ramosissima* Greene should properly be designated as *C. maritima*. As Coville indicated twenty-nine years ago (Contr. U. S. Nat. Herb. 4: 165. 1893) *K. ramosissima* is an untenable name for the plant in question, Gray having originally proposed it as a substitute, on the grounds of applicability, for the specific name *racemosa*. Gray clearly indicated that *Eritrichium racemosa* Wats. and *K. ramosissima* Gray were synonymous, but Greene took the latter name and gave it a wholly new connotation, making it cover certain misdetermined specimens cited by Gray under the name *K. ramosissima*. *K. ramosissima* Greene is a redefinition of *K. ramosissima* Gray, and as this latter is unquestionably a synonym of *C. racemosa*, the former, technically having the same type as the latter, since it is merely a redefinition of it, cannot be considered more than an improper interpretation of *K. ramosissima* Gray. Neither the American nor the Vienna Code will justify the use of *K. ramosissima* in the sense that it is currently used in today!

C. maritima was described from Guadalupe Island specimens, but despite its remote insular habitat, like many other species,

it is identical with the mainland form. Gray (in the supplement of the Synoptical Flora, p. 428), attempted to distinguish between the insular plant and *C. ramosissima* Greene, but when applied to a series of any size, his characters utterly fail to divide the two forms and certainly do not segregate the material into anything suggesting geographical lines. Vasey and Rose (Proc. U. S. Nat. Mus. **11**: 532. 1888) and Brandegee (Bot. Gaz. **27**: 453. 1899) have expressed doubts as to the distinctness of *C. ramosissima* and *C. maritima*, but now with a fine series for study, we feel that their doubts can be increased to the point of certainty. Every character presented by the Guadalupe specimens, or for that matter by any of the coastal plants, can be exactly duplicated in specimens from the desert interior. Though it is unfortunate that a name such as "*maritima*" should be applied to a plant so characteristic of the driest portions of the desert area, yet there is no technical reason for coining a new name or for accepting any other old one.

Among the California representatives of the genus, *C. maritima* is unique in its possession of dark reddish stems. This species, along with *C. recurvata*, possesses but two ovules, a condition different from that found in all other species of the genus (*cf.* Brandegee, *l.c.*).

Cryptantha gracilis var. **Hillmanii** (Nels. & Ken.) comb. nov.
Cryptantha Hillmanii Nels. & Ken. Proc. Biol. Soc. Washington **19**: 157. 1906.

This plant must now be accredited a place in the California flora. It would seem that it enters the state only in the region of the Providence Mountains, for the only California collections come from them; Mrs. Brandegee got it at Barnwell and we made a fine collection, *M, J & H 4222*, near the Bonanza King Mine.

C. Hillmanii is very close to *C. gracilis* Osterhout (Bull. Torrey Club **30**: 236. 1903) and at most is but a poor variety of the latter species. Abundant collections of the species may cause *C. Hillmanii* to be reduced outright, but the single isotype of *C. gracilis* in the University of California collection seems to differ from all the specimens of *C. Hillmanii* in its lower and more slender habit and less congested inflorescence; therefore, for the time

being, *C. Hillmanii* can be retained in varietal rank. The type of *C. gracilis* came from Glenwood Springs in the mountains of Colorado and it is entirely possible that the differences detected are environmental in origin. Among California cryptanthas, *C. Hillmanii* can be recognized by its single smooth nutlet and usually fulvous, densely pilose and inconspicuously bristly calyx.

Penstemon Munzii Johnston, sp. nov.

Plants with several coarse, erect, loosely tufted glabrate stems that become at least five dm. high; leaves all opposite, entire and glabrate; basal leaves ovate- or lanceolate-spatulate with winged petioles that about equal the blade, becoming 7 cm. long and 2.5 cm. wide; the lower cauline leaves oblanceolate, the upper ones broadly sessile and lanceolate, while the leaves of the inflorescence are minute and linear-subulate; inflorescence narrow, the flowers in strict one- to three-flowered cymules; corolla bright red, 2 cm. long, narrowly funnelform-tubular, evenly though but slightly ampliated upward, strongly and conspicuously bilabiate, glabrous within; upper two lobes of the corolla erect, about 7 mm. long, united for about two-thirds of their length, lower three lobes of the corolla strongly reflexed, about 6 mm. long, united for nearly half their length; anther-sacs glabrous, obscurely rugulose or papillose, adnate if at all only near the base, ovate-oblong, 2–2.5 mm. long, their inner sides paralleling each other or forming a small angle; dehiscent by a slit extending between two-thirds and three-fourths the way to the base, sharply dentate along the line of dehiscence; sterile filament glabrous, somewhat flattened, emarginate; sepals broadly ovate, acute, 3–5 mm. long, scarious margined; pedicels about as long as the sepals; fruit unknown.

Known only from the type specimen, collected in May, 1920, *Munz, Johnston, & Harwood 4271*, on a high exposed ridge in the pinyon belt near the Bonanza King Mine on the east slope of the Providence Mountains, Southeastern California. The type is No. 7534 in the Baker Herbarium of Pomona College.

Certainly of the *Barbati* and probably nearest *P. barbatus Torreyi* (Benth.) Gray, but very different from it in its color, which is a brighter, lighter, and more yellowish red, in the measurements of the corolla, and in the size as well as non-divergence of the anther-sacs. *P. Munzii* is a lower, stouter, and less graceful plant than most of the forms of *P. barbatus* (Cav.) Roth.

From *P. Eatoni* Gray and from *P. subulatus* Jones, the other two red penstemons found in this part of the desert area, both of

which are in the *Centranthifolii*, this species can be quickly separated by its unique tone of red and by its smaller, stouter, decidedly bilabiate corollas. It is a well marked species and a fitting addition to the interesting penstemon flora of the Providence Mountains.

Penstemon Clevelandii var. **Stephensi** (Brandegee) comb. nov. *Penstemon Stephensi* Brandegee, Zoe **5**: 151. 1903.

During one of our trips to the Providence Mountains we made a small collection of this little known plant, which is apparently rare in the type region; for Mr. Brandegee informs us that he collected only enough for the type sheet, a full one, while our collection, *M, J & H 4274*, was enough for only a few duplicates.

A critical study of our collection and of the type seems to indicate that *P. Stephensi* finds a very close relative in *P. Clevelandi* Gray, a species restricted to the canyons about the Colorado Desert and in the mountains to the west of it. Our collection of *P. Stephensi*, as well as the type, is so similar to certain collections of *P. Clevelandi* (*e.g., Hall 1160* and *2149* and *Parish Bros. 1216*) that as far as gross aspect, size and vegetative characters are concerned, they might be of one and the same collection. There is, however, one character which separates the two collections of *P. Stephensi* from all of the many collections of *P. Clevelandi;* this is the lack of bearding on the sterile filament. Though the corollas of the two forms are alike in size, color, and shape, the sterile filament in *P. Stephensi* is absolutely bald, while it is densely bearded in *P. Clevelandi*. Appreciating, therefore, that we are concerned here only with a unit-difference, we feel that *P. Stephensi* is nothing but a geographic race of *P. Clevelandi* and, because of it, worthy only of a subordinate rank.

PENSTEMON PALMERI Gray

Penstemon Palmeri Gray, Proc. Am. Acad. **7**: 379. 1868.

We found this species to be the most common and most spectacular penstemon in the Providence Mountains, *M, J & H. 4276*. About the Bonanza King Mine it was common about the foot of the mountains and especially so in small draws, where it grew in large colonies. This being our first acquaintance in the

field with the typical plant, and knowing quite intimately the low, much-branched, few-flowered montane plant, currently going under the name of *P. Palmeri*, we were much surprised to discover that this tall, virgate, many-flowered, desert plant was the typical form of *P. Palmeri*. While unquestionably, the montane plant is a close ally of the taller interior form, and as herbarium material shows, intergrades with it, yet we feel that so pronounced an extreme ought to be given nomenclatorial recognition, and so, for us, the mountain form becomes:

Penstemon Palmeri var. **Grinnellii** (Eastw.) comb. nov.

Penstemon Grinnellii Eastw. Bull. Torrey Club **32**: 207. 1905.

The type of this form came from Mt. Wilson and is the form rather common in rocky ground in the pine belt, and to a less extent in the upper chaparral belt, in the mountains of Southern California from the San Jacinto Range northward. With this restriction the species itself becomes strictly deserticolous. In its extreme the variety is characterized by its looser, shorter and fewer flowered inflorescence, lower and more slender stature and non-glaucous leaves.

PENSTEMON CALCAREUS Brandegee

Penstemon calcareus Brandegee, Zoe **5**: 152. 1903. Not Jones, 1908.

Penstemon desertorum Jones, Contr. W. Bot. **12**: 59. 1908.

We succeeded in making a fair-sized collection of this peculiar and interesting little plant, *M, J & H. 4154*. The species is known from but two other collections, all of them from the Providence Mountains, where it grows in crevices of rocks on vertical cliffs.

P. desertorum Jones, the type of which came from Kelso on the west slope of the mountains, is identical with Mr. Brandegee's species; for isotypes of the former plant are exact matches for plants on the type sheet of the latter; in fact, Mr. Brandegee's type, Mr. Jones' Kelso collection and our plants form a remarkably uniform series in aspect and size, as well as in structural characters.

P. calcareus Jones (Contr. W. Bot. **12**: 60. 1908) is a homonym and appears to be a synonym of *P. petiolatus* Brandegee (Bot. Gaz. **27**: 455. 1899).

Penstemon antirrhinoides var. **microphyllus** (Gray) comb. nov.
Penstemon microphyllus Gray, Pac. R. R. Rep. 4: 119. 1856.
Penstemon Plummerae Abrams, Bull. Torrey Club 33: 445. 1906.

In California this interior form of *P. antirrhinoides* Benth. is known only from the Providence Mountains. Mr. Brandegee collected and reported it (Zoe 5: 151. 1903) as *P. antirrhinoides*, while we found it to be rather common on the rocky sides of a small canyon back of the Bonanza King Mine. Although quite familiar with *P. antirrhinoides*, as represented on the coastal slopes, we could not detect in this desert plant any peculiarities of habit or size, though while observing the plant in the field we agreed that there was some intangible difference, a difference which was later discovered to reside in the grayish hue resulting from a cinereous pubescence.

This shrub was described by Gray from flowerless specimens collected by Bigelow on the "Williams Fork of the Colorado." Based on insufficient material, the plant has remained an obscure one. It is not surprising, therefore, that Dr. Abrams, upon meeting so obscure a plant, treated it as though it were undescribed. It can hardly be doubted that *P. Plummerae* and *P. microphyllus* are synonyms, for Dr. Gray's meager description applies completely to *P. Plummerae*, while the types of both are from the same phytogeographical area. Significant evidence is found also in the fact that this is the only shrubby *Penstemon* revealed by recent collecting in Arizona.

Dr. Abrams has indicated the characters separating this form from the typical *P. antirrhinoides*, which ranges on the hillsides near the coast from San Pedro Martir Mountains northward to near San Bernardino, and which is characterized by its very broadly ovate sepals and glabrate or puberulent twigs. The variety *microphyllus*, on the other hand, is strictly an interior form, ranging from the Providence Mountains eastward into western Arizona, and is marked by its distinctly cinereous twigs and oblong-ovate or ovate-lanceolate sepals. While the threefold difference residing in the sepals, pubescence and range, argues much for specific distinctness of these plants, the relationship is so close and so obvious that we feel it best to treat them only as well marked geographic forms.

PENSTEMON ALBOMARGINATUS Jones

Penstemon albomarginatus Jones, Contr. W. Bot. **12**:61. 1908.

We are able to report the first collection in California of this distinct species. We obtained the plant near Lavic, where it grew in the deep sand of a wash that ran up between the tongues of the lava-flow surrounding Mt. Pisgah. The wash was a stone's throw from the Sante Fe Trail and near the grade crossing west of Lavic. The species is very aptly named, for the white margining to the leaves and sepals is very striking. It is apparently rare and we can get trace of but three other collections: Good Springs, Nevada, and Yucca, Arizona, reported by Professor Jones; and Jean Station, Nevada, collected by Mrs. Brandegee (specimen in the herbarium of the University of California). Professor Jones collected the type in sand and, as our plant grew in similar material, the species is probably arenicolous and is to be looked for in sandy places. The type and our collection, *M, J & H 4204*, were both collected in May and were at the time setting seed.

Aplopappus Gooddingi (Nels.) comb. nov.

Sideranthus Gooddingi Nels. Bot. Gaz. **37**: 266. 1904.

A single plant, *M & H 3603*, collected on a gravelly hillside about eleven miles west of Needles. The present collection is the first one from California, but is remarkably like the typical plants from Nevada. It is characterized by its perennial root and tall strict stems and large and multiradiate heads, which are up to 16 mm. wide. *A. gracilis* the nearest relative of the desert regions, is a lower annual with ascending stems, smaller (1 cm. or less wide) heads and fewer rays, eight to sixteen; its leaves are more setose than in *A. Gooddingi*.

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INDEX TO AMERICAN BOTANICAL LITERATURE

1910–1921

The aim of this Index is to include all current botanical literature written by Americans, published in America, or based upon American material; the word America being used in the broadest sense.

Reviews, and papers that relate exclusively to forestry, agriculture, horticulture, manufactured products of vegetable origin, or laboratory methods are not included, and no attempt is made to index the literature of bacteriology. An occasional exception is made in favor of some paper appearing in an American periodical which is devoted wholly to botany. Reprints are not mentioned unless they differ from the original in some important particular. If users of the Index will call the attention of the editor to errors or omissions, their kindness will be appreciated.

This Index is reprinted monthly on cards, and furnished in this form to subscribers at the rate of three cents for each card. Selections of cards are not permitted; each subscriber must take all cards published during the term of his subscription. Correspondence relating to the card issue should be addressed to the Treasurer of the Torrey Botanical Club.

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